‘3 things to never forget’

Executive VP and Deputy Labs Director Steve Rottler’s final all hands meeting

See page 7

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A message for all Sandians from Sandia President and Laboratories Director Jill Hruby

‘Be bold. Be excellent. Be willing to learn.’

Colleagues,

The time has come for me to wish you all a bright future and to express my gratitude for being allowed to be your boss, your colleague, and in many cases, your friend. Every day over the past 34 years, I have felt deeper respect for the work we accomplish at Sandia and for the quality and commitment of all who work here.

Sandia is a wondrous institution. Over the past 68 years, our institution has kept the nation’s nuclear weapons safe, secure, and reliable. Every year, we have evolved and advanced our approaches, and welcomed and trained new generations to contribute to this noble mission. And for decades, we have used our skills and unique facilities to support other missions of national importance. Our Laboratories’ impact can be found in energy, cybersecurity, biological defense, nuclear nonproliferation, satellites, and so much more. Today, we are the nation’s largest engineering research laboratory. Nearly anywhere you travel in the world, you are likely to meet a Sandian or come across a contribution from Sandia. And in our local communities, we are generous with our time and financial donations. Your individual and collective contributions hold me in awe.

PRESIDENT AND LABORATORIES DIRECTOR JILL HRUBY

It takes a lot to make an institution like Sandia hum. Our technical people must stay focused on deliverables while remaining current in research and curious about innovations. Our mission support personnel must share the focus on mission and find approaches to make Sandia more productive and responsive. Our leaders must think strategically, be knowledgeable about their fields, and have concern for and understanding of their employees. Most important, these groups need to work together and produce an environment of excellence, inclusiveness, and respect. When the institution hums, everyone feels it. I hope you experience that feeling at Sandia, and I certainly hope you have felt it over the past couple of years.

The Department of Energy and the National Nuclear Security Administration decided to change the Management and Operating (M&O) contractor for Sandia from Sandia Corporation (a wholly owned subsidiary of Lockheed Martin) to National Technology and Engineering Solutions of Sandia, NTESS (a wholly owned subsidiary of Honeywell International), in December 2016. It has been 24 years since Sandia experienced a contractor change. NTESS-Honeywell will become the third M&O contractor in Sandia’s history and will play an influential role in the life of the Laboratories.

Departing VPs say goodbye, reflect on Labs’ enduring mission
See pages 6-7

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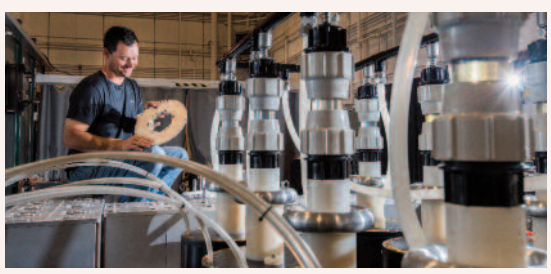
Inside . . .



Brain boosting

Sandia research shows brain stimulation during training boosts performance on other tasks

By Mollie Rappe

Your Saturday Salsa club or Introductory Italian class might be even better for you than you thought.

According to Sandia cognitive scientist Mike Trumbo (1463), learning a language or an instrument or going dancing is the best way to keep your brain keen despite the ravages of time. Not only do you enhance your cognition but you also learn a skill and have fun.

Several commercial enterprises have claimed that you can get cognitive benefits from brain training games intended to enhance working memory. Working memory is the amount of information you can hold and manipulate in your mind at one time, says cognitive scientist Laura Matzen (1463). However, a burgeoning body of research shows working memory training games don’t provide the benefits claimed. A study by Mike, Laura, and colleagues published in *Memory and Cognition* shows evidence that working memory training actually impairs other kinds of memory.

On the other hand, studies have shown that learning another language can help school-age children do better in math and can delay the onset of dementia in older adults. Also, going dancing regularly is the best protection against dementia compared to 16 different leisure activities such as doing crossword puzzles and bicycling. Playing board games and practicing a musical instrument are the next best activities for keeping the mind sharp. Dancing is probably so effective because it combines cognitive exertion, physical exercise, and social interaction, says Mike.

New research from the Labs published in *Neuropsychologia* shows that memory

(Continued on Page 4)

BRAINSTORM — Mike Trumbo puts the transcranial direct current stimulation (tDCS) headset on Laura Matzen. Though Mike has tried tDCS dozens of times, he does not use it to boost his own brain. (Photo by Randy Montoya)

Take our Daughters & Sons to Work Day/ Earth Day 2017 celebration.

APRIL 27

More info on page 9

Celebrating Volunteer Month . . . See page 8

That's that

As the transition from the Lockheed Martin era to the NTESS era approaches its culmination, it is a time for helloes and goodbyes.

In the next couple of weeks, we'll be introducing ourselves to new leaders who will want to know everything about us that they can: what motivates us, what inspires us, who we are, and what we aspire to be. They'll want to understand our hopes for this laboratory and our hopes for ourselves and our careers. In the months ahead there will be plenty of time for us to get to know each other and how we can work together to make Sandia the very best that it can be.

That's for tomorrow. For today, it is a time for partings. We are saying goodbye not just to Lockheed Martin, which has ably led us through a complex period in our nation's — and our laboratory's — history, we're saying goodbye, too, to a number of friends and colleagues who had the talent, the commitment — and yes, the courage — to take on leadership roles in perhaps the most high-stakes enterprise in the nation, the stewardship of America's ultimate strategic deterrent. For make no mistake: Before and above everything else, it takes courage to be a leader, to accept responsibility, to be the person with the sign on the desk that reads: "The buck stops here."

On page 1 of this issue, departing Labs Director Jill Hruby shares her thoughts about her personal journey and the journey of the Laboratories, which has been such a central part of her life for fully half the Labs' history. And on pages 6 and 7, several of our departing VPs say their goodbyes to the Labs as well, expressing confidence in the future of the nation's most indispensable research institution. Among all the messages, a common theme emerges: Before all other considerations, the thing that counts, the memory that remains, is of the people.

When I think about the departures we now go through, I'm reminded of the farewell address by Gen. Douglas MacArthur to the corps of cadets at his beloved United States Military Academy.

"But in the evening of my memory always I come back to West Point," MacArthur told the long gray line of cadets. "Always there echoes and re-echoes: Duty, Honor, Country. Today marks my final roll call with you. But I want you to know that when I cross the river, my last conscious thoughts will be of the Corps, and the Corps, and the Corps. I bid you farewell."

I don't mean to remotely suggest that our departing leaders are approaching that "river" MacArthur evokes; Sandia isn't West Point and Sandians aren't "the corps," but in many ways, I believe the sentiment is the same. Something about this laboratory gets into our hearts and minds in a way that a typical "job" never could. Long after we leave, our thoughts will return time and again to the Labs. We'll be like that yeoman farmer from Henry II's St. Crispin's Day speech, as told by William Shakespeare:

"Old men forget; yet all shall be forgot, but he'll remember, with advantages, what feats he did that day."

As we say goodbye to our departing leadership team, we, too, will remember the feats, the great things, we accomplished together for the nation.

Goodbyes are not easy, but there's always this consolation, as A.A. Milne wrote in *Winnie the Pooh:* "How lucky I am to have something that makes saying goodbye so hard."

So this is goodbye — goodbye to an era that saw an end to the Cold War, the emergence of new threats to our nation's security, and the dizzying, logarithmic expansion of the cyber universe and biotech, posing challenges to Sandia that we met with our characteristic can-do, get-it-done-brilliantly style.

We say goodbye to Lockheed Martin and to friends and leaders who will be missed and remembered. And we face the future under new leaders, new friends-to-be, with the optimism and confidence earned through a 70-year legacy of exceptional service.

To end on a final note from J.R.R. Tolkien's *Lord of the Rings:* "Well, here at last, dear friends, on the shores of the sea comes the end of our fellowship in Middle-earth. Go in peace! I will not say: do not weep; for not all tears are an evil."

See you next time.

— Bill Murphy (MS 1468, 505-845-0845, wtmurph@sandia.gov

Changes to Sandia's 401(k) plan

Since the M&O contract is transitioning to NTESS on May 1, 2017, the Lockheed Martin Company Common Stock Fund (Company Common Stock Fund) will no longer meet the diversification requirements that are waived for parent company stock; therefore, on April 28, 2017, Sandia Corporation's Investment Committee will freeze the Company Common Stock Fund to new contributions and investment transfers. Twelve months later, on April 30, 2018, the fund will be removed as an investment option from the Sandia Corporation Savings and Income Plan — the 401(k) plan.

If you are directing all or part of your future contributions to the Company Common Stock Fund and do not make a change prior to stock market close on April 28, 2017, your investment election will automatically be directed to the Vanguard Target Retirement Trust based on your date of birth and the assumption that you will retire at age 65.

Similarly, if you have investments in the Company Common Stock Fund at the stock market close on April 30, 2018, your investment will automatically be liquidated and invested in the Vanguard Target Retirement Trust based on your date of birth and the assumption that you will retire at age 65.

If you are not satisfied with the default changes that will occur on April 28, 2017, and April 30, 2018, you can make changes by going to Fidelity NetBenefits at www.401K.com or call the Sandia Savings Plan Information and Transaction line at 800-240-4015 (M-F, 8 a.m.-midnight Eastern).

If you are no longer a Sandia employee or meet distribution eligibility requirements, an in-kind stock withdrawal may allow you to continue to own the shares of Lockheed Martin Corporation common stock outside of the 401(k) plan. For additional details, call the Sandia Savings Plan Information and Transaction number listed above and inquire about an in-kind stock withdrawal from the Company Common Stock Fund.

Recent Patents

Xiaowang Zhou (8343): Photovoltaic Cell with Nano-Patterned Substrate. Patent No. 9472702.

Anthony L. Lentine (1765): Power Meter Ratio Method of Stabilizing a Resonant Modulator. Patent No. 9467233.

Thomas M. Kroeger (8965): Serial Interpolation for Secure Membership Testing and Matching in a Secret-Split Archive. Patent No. 9514326.

Erik Nielsen (1117), Michael Lilly (1132), Robin J. Blume-Kohout (1425), Noah Tobias Jacobson (1425), Andrew J. Landahl, (1425), Wayne Witzel (1425), Ezra Bussmann (1729), Stephen M. Carr (1729), Malcolm S. Carroll (1729), James Ewers Levy (1753) and Anand Ganti (9336): Semiconductor Adiabatic Qubits. Patent No. 9530873.

Paul C. Galambos (1719), Thomas B. Crenshaw (1851), Jeffrey W. Lantz (2159), Erik E. Nishida (5421) and Damon J. Burnett (5947): Silicon Force Sensor and Method of Using the Same. Patent No. 9459161.

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LOCKHEED MARTIN

SWAN Leadership Panel: Leading from where you are

ON MARCH 22, Sandia Women's Action Network (SWAN) hosted its third annual leadership panel. This year, the panel consisted of accomplished women from various levels of leadership who discussed their leadership journeys and important mentors, how they combat the perception that women in leadership roles are "pushy," and how they balance the demands of work and family. In response to the last question, Div. 3000 VP Melonie Parker said, "Stop feeling guilty! You can have it all, but not all at the same time." She added that having a village or network to rely on, and having a frank conversation with your manager about your goals are also important. From left, Blythe Clark, manager of 1819; Miquelita Carrion, quality systems professional in 0753; Melecita Archuleta, senior manager of Group 2730; Melonie Parker, VP of Div. 3000; and Bernadette Gallegos-McCrea (9515), moderator and co-chair. If you missed the panel, you can view the archived video online. (Photo by Norman Johnson)

Come and knock on our door

New building welcomes visitors to CA site

BLDG. 926 at Sandia/California is complete and open for business. (Photo by Michael Padilla)

By Jules Bernstein

With the snip of some scissors, Sandia VPs recently signaled the start of a new era on the California campus. During a ribbon-cutting ceremony on March 15, staffers got their first look inside Bldg. 926, which serves as a new "front door" to the site.

The gleaming 19,247-square-foot facility with expansive views, reclaimed wood from a local barn, and a unique two-story glass wall at its entrance now houses Human Resources. In addition, the building offers space for training, employment candidate interviews, seating for new hires, and meetings with public visitors. MOWs and visitors can easily access the building, which is adjacent to the east side entrance and parking lot. Director of Site Operations David Gibson (8500) praised the completion of the building as "an important milestone in the development of the open campus."

The Livermore Valley Open Campus was established on the site's east side in 2010 with the goal of creating space for collaboration between Sandians and others working to solve national security challenges. In addition to furthering that goal, the new building also kicks the overall site development plan into gear.

David says, "Moving HR capabilities to Bldg. 926 provides an opportunity for space to be reconfigured in support of the site's growing classified mission work." The space formerly occupied by HR in Bldg. 911 will now be incorporated into the limited area and used for new hires in the telemetry and joint test assembly programs.

Later phases of the site development plan include the renovation of Bldg. 912, also in the limited area, to be completed in 2018.

A number of distinguished guests attended the ribbon cutting for Bldg. 926, including VPs Marianne Walck (8000), Marianne Hill (11000), Jennifer Plummer (10000), and their teams.

Speaking at the kickoff event, Marianne reminded visitors that the construction of a facility as large and as modern as Bldg. 926 is not a simple task. Before cutting the red ribbon in the entranceway, she noted that "achieving a pleasing design while maximizing size and staying within the $10 million institutional general plant project budget was made possible only by the tireless labor of many Sandians."

Marianne specifically called out three employees for their exceptional contributions to the project: Site Operations Senior Manager John Garcia (8510), Senior Facilities Manager Rocky Lioce (4820), and Senior Procurement and Operations Manager Krista Smith (10240).

Div. 4000 VP Michael Hazen echoed Marianne's gratitude, saying, "We could not have reached this day without the efforts of staff in both California and New Mexico. A very special thanks to acting Facilities Manager Eva Clark (8545), a formable force for sure. Many others including Senior Facilities Manager Craig Taylor (8540) and now-retired Site Operations Director Denise Koker (8000) as well as the entire teams from Sandia Facilities, Legal, and Procurement were able to bring us to this day."

Scissors in hand, left to right, acting Facilities Manager Eva Clark (8545), retired 8500 Director Denise Koker, and Div. 8000 VP Marianne Walck cut the ribbon on the Bldg. 926 stairs. (Photo by Randy Wong)

Sandia Exceptional service in the national interest CaliforniaNews

Kahuna: A multitalented wizard

Data analytics cluster created to enhance Sandia's computing capabilities

By Michael Padilla

A new data analytics cluster at Sandia/California may be small in comparison to other computer clusters around the national security complex, but it functions like a giant.

Dubbed Kahuna, meaning a multitalented wizard that can do many things, the cluster was built to be a flexible, multipurpose platform and is available for any computer analytics researcher at Sandia with Sandia Restricted Network access.

Kahuna was delivered in the summer of 2015 and brought on line in the fall of 2015. Since then, Kahuna has been running a mix of different workloads including data-intensive analytics, architectural simulations, combustion modeling, and graph exploration.

Funding for Kahuna came from mission support and approved by Sandia's Mission Computing Counsel (MCC). Robert Clay (8953), who serves on the MCC, says Sandia wanted a cluster that could support various applications and be used year round.

"Kahuna consolidates individual capabilities and provides a benefit to everyone," says Robert. "Kahuna is a really good investment and helps fulfill Sandia's mission."

Jerry Friesen (8953) and Craig Ulmer (8953), who oversaw the creation of Kahuna, say the idea for a multipurpose platform began three years ago, during discussions with data-intensive users.

"A number of our Hadoop [open source software] users began needing more compute power for their algorithms," Craig says. "But their storage-intensive workloads did not map well to Sandia's compute-optimized platforms."

The fundamental goal of Kahuna was to design a system that could perform compute-intensive workloads and data-intensive workloads on the same hardware.

"Kahuna's flexibility means that we can support a broad range of users, and that we can adapt Kahuna to solve different problems as Sandia's mission needs evolve," says Jerry, who also maintains the upkeep of Kahuna.

Utilizing Kahuna

The response from various Kahuna users has been extremely positive. For Philip Kegelmeyer (8900), Kahuna has been instrumental in assessing how well an adversary could hide from us.

Philip is the lead on the Counter-Adversarial Graph Analytics (CAGA) project. CAGA is a three-year Laboratory Directed Research and Development project established to characterize vulnerabilities in graph analysis methods induced by adversaries.

"The project is part of Sandia's general investigation into 'adversary aware' analytics," says Philip.

In its first year and a half, CAGA has focused on the ability of an adversary to subvert the popular Louvain community detection algorithm in graphs. The CAGA team regularly uses Kahuna to perform exhaustive empirical investigations into the algorithmic vulnerabilities of Louvain in the context of a national security application.

Philip says that a typical parameter study hunts for values that would allow an adversary to steer Louvain to a particular result. This requires extracting approximately 90 million Louvain results for graphs with a few hundred nodes, requiring approximately two hours on 60 Kahuna nodes. Kahuna allows the team to conduct thousands of variations of those parameter studies. The team is currently investigating the simulated data to defend real graphs.

Inside Kahuna

Kahuna provides 120 compute nodes for user applications and has a 1.5PB Ceph filesystem for storing datasets. Each compute node has 28 physical cores, 256GB of memory, and a 750GB NVMe storage device. The large memory and fast NVMe storage is desirable for data-intensive users, as it enables application developers to cache large amounts of data at the compute nodes. The compute nodes communicate through 10Gb/s Ethernet and 56Gb/s InfiniBand, and are therefore usable by traditional HPC applications. The theoretical peak performance of the system is 107 Tflops.

A companion/follow-on machine is under consideration for Sandia/California for meeting lab-wide needs in combined compute intensive/data intensive flexibility.

Individuals requesting additional information on how to utilize Kahuna should email mcc-request@sandia.gov.

Strategic Petroleum Reserve taps Sandia expertise in salt

By Sue Major Holmes

Not all salt is created equal, so when the nation stockpiles oil in salt caverns, it's important to know all about the salt itself, as well as the shape of the storage caverns.

Decades of Sandia expertise on how salt domes behave went into a recent report that concluded that DOE is justified in extending the life of the Strategic Petroleum Reserve (SPR). The Government Accountability Office will recommend an optimal size to Congress.

The report, "Long-Term Strategic Review of the US Strategic Petroleum Reserve," analyzed the reserve's capability to be tapped, or drawn down, and how that figures into future storage decisions. Sandia estimated the number of potential drawdowns per cavern, using computer models that consider such factors as cavern shape, relationship to surrounding caverns and salt movement, or creep, and how such parameters ultimately affect a cavern's stability.

Calculating the number of drawdowns left was particularly important, says geologist Anna Lord, Sandia project manager for the SPR. The number of times each cavern can still be tapped into impacts overall design storage capacity decisions, including whether new caverns would be needed, she says.

The SPR was established after the 1973 oil embargo to protect the United States from severe oil supply interruptions and to meet its obligations under the International Energy Program.

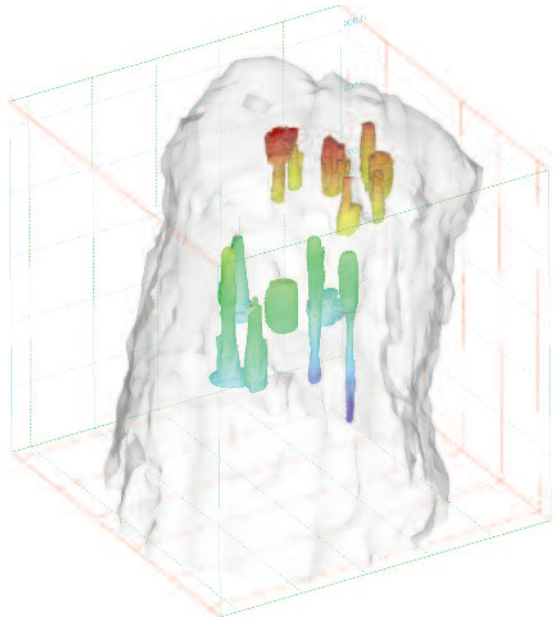
DOE brought in Sandia five years later. The Labs became geotechnical adviser in 1980, responsible for characterizing the site, including cavern and well development, geomechanical analysis, the integrity of caverns and wells, subsidence, and monitoring.

Oil tapped at president's order

The SPR operates four major storage facilities in the underground salt domes of the Gulf Coast, two in Louisiana and two in Texas. The stockpile of government-owned crude oil can be tapped at the president's order when an emergency disrupts commercial oil supplies.

"When the president calls up and says, 'We need to release X amount of oil,' they need to be ready to do that at a certain rate and a certain amount a day," Anna says. "All the work we do goes toward making sure they're able to do that."

Sandia's work falls into two areas: geotechnical, which involves updating geologic understanding of the salt domes, modeling the caverns' geomechanical behavior and assuring the integrity of caverns and wells drilled into them; and engineering, which includes understanding fluid behavior, analyzing the leaching process that occurs during oil removal, and assuring the SPR meets environmental, safety, and oil quality requirements.



THIS 3-D IMAGE of the Bayou Choctaw salt dome, one of the areas that houses the nation's Strategic Petroleum Reserve, shows caverns in the reserve, although not all of the caverns depicted hold oil. Sandia National Laboratories is the geotechnical adviser for the reserve.
(Photo courtesy of Dept. 6912)

Studying well integrity is one of Sandia's most important responsibilities, Anna says. Think of wells as a series of casings inside each other like concentric circles, with each smaller well deeper than the larger one above. The column of casing, called a string, acts as a protective barrier — if one concentric circle goes, others remain.

Well failure could cause oil to leak into the environment, and a well that loses integrity can't be used to pull oil out.

Sandia's team analyzes well integrity through hydrostatic column computer modeling. SPR operators send nitrogen gas down the wells to test whether they're losing pressure, and the Sandia models provide rates and locations of any nitrogen leaks. A nitrogen leak does not necessarily mean the well will leak oil, so the model differentiates between pressure changes caused by nitrogen flow versus oil flow. Pressure tests can indicate "when do we worry, when do we need to do remediation?" Anna says.

Geology becomes deciding factor

"No one's ever looked at this before, so we started a program to really try to understand what's going on behind the well. We've come up with a model that can tell us what the leak rates are and where those leaks may be," she says. "We're getting into the new area of what's going on behind the scenes.

"There are well integrity issues everywhere, not just at the SPR. This happens anywhere with aging infrastructure. Geology takes over; engineering doesn't matter."

Oil is removed by injecting fresh water into the brine stored at the bottom of the caverns, pushing out oil floating above the brine. But fresh water dissolves salt, changing the caverns' shape.

"So we do studies to see where the water will change it, how much it will change it, does that new shape affect stability?" Anna says.

Each cavern was meant to be emptied five times. However, emptying a cavern makes it larger because the fresh water dissolves some of the salt. Sandia's geomechanical modeling shows, for example, "oh, you really only have three drawdowns in this cavern, you have a full five in this one, but you have none in this one, and if you take all the oil out of this one you cannot use that cavern again," Anna says.

Making sure caverns are optimal shape

When the SPR started, the government wanted to store oil as quickly as possible, and bought caverns the petrochemical industry had used. The SPR still uses some of those, but most oil today is stored in caverns the DOE created with Sandia's feedback.

"Different domes behave differently," Anna explains. "Maybe they have higher creep rates than other domes. It depends on how homogenous it is. Is it pure salt or is it salt with shale or other impurities mixed in, such as anhydrite?"

SPR managers can't create a cavern simply by pumping in fresh water — the configuration of injection wells helps create the desired shape. Sandia researchers determine salt properties in an area by analyzing impurities and doing stress and strain testing, and they model different leaching well configurations. From the model, they can determine how leaching will affect the cavern's shape. They know from past studies what a cavern should look like for continued integrity.

Sandia also makes recommendations for cavern operations based on their size and shape. Salt creeping to close voids causes stresses and strains on caverns and wells. Sandia's geomechanical modeling predicts where those might occur and whether they'll create a problem.

The team stepped up well and cavern integrity modeling in the past couple of years, collecting and analyzing existing data to see what's going on and how one cavern's operation affects a neighboring cavern. "We're trying to bring all the pictures together into one holistic story," Anna says.

Brain boosting

(Continued from page 1)

training combined with a kind of non-invasive brain stimulation can lead to cognitive improvement under certain conditions. Improving working memory or cognitive strategies could be very valuable for training people faster and more efficiently.

"The idea for why brain stimulation might work when training falls short is because you're directly influencing brain plasticity in the regions that are relevant to working memory task performance. If you're improving connectivity in a brain region involved in working memory, then you should get transfer to other tasks to the extent that they rely on that same brain region," says Mike. "Whereas when you're having people do tasks in the absence of brain stimulation, it's not clear if you're getting this general improvement in working memory brain areas. You might be getting very selective, task kind of improvements."

Laura cautions that research using transcranial direct current stimulation (tDCS) to improve cognitive performance is relatively new, and the field has produced mixed results. More research is needed to understand how best to use this technology.

Neurons that fire together wire together

Using more than 70 volunteers divided into six groups, the researchers used different combinations of working memory training along with tDCS. Then they assessed the volunteers' performance on working memory tests and a test of problem-solving ability.

Using electrodes placed on the scalp and powered by a 9-volt battery, a tDCS unit delivers weak constant current through the skull to the brain tissue below. Mike says most people feel some mild tingling, itching, or heat under the electrode for the first few minutes. There are well-established safety guidelines for tDCS research, ensuring that the procedure is safe and comfortable for participants and this research was approved by Sandia's Human Studies Board and the University of New Mexico's Institutional Review Board. There are commercial tDCS devices already on the market.

Researchers think tDCS makes neurons a little bit more likely to fire, which can help speed up the formation of neuronal connections and thus learning, says Laura. Though the exact mechanisms aren't well understood, its potential is. tDCS can help volunteers remember people's names, is better than caffeine at keeping Air Force personnel awake, and may even help fight depression.

Brain stimulation and brain training: better together?

In this study, the volunteers played verbal or spatial memory training games for 30 minutes while receiving stimulation to the left or right forehead. That part of the brain is called the dorsolateral prefrontal cortex and is involved in working memory and reasoning. Since the right hemisphere is involved in spatial tasks and the left hemisphere is involved in verbal tasks, the researchers thought volunteers who received stimulation on the right side while training on spatial tasks would improve on spatial tests and those who received stimulation on the left side while training on verbal tasks would improve on verbal tests.

> *"The idea for why brain stimulation might work when training falls short is because you're directly influencing brain plasticity in the regions that are relevant to working memory task performance. If you're improving connectivity in a brain region involved in working memory, then you should get transfer to other tasks to the extent that they rely on that same brain region."*
>
> — Sandia Researcher Mike Trumbo

The verbal task involved remembering if a letter had appeared three letters back in a string of letters, for instance A-C-B-A-D. The spatial task was similar but involved remembering the sequence of blocks in a grid.

As expected, the spatial/right group got better at the spatial test but not verbal or reasoning tests. The spatial/left group performed about the same as the volunteers that received mock stimulation. The verbal/left group got better at the verbal test but not spatial or reasoning tests.

However, the results from the verbal/right group were surprising, says Mike. This group got better at the trained task — remembering strings of letters — as well as the closely related task — remembering the sequence of boxes in a grid. They also improved on a reasoning test. The sample size was small, with only 12 volunteers in the verbal/right group, but the improvements were statistically significant, says Laura.

One explanation Mike offers is that the right dorsolateral prefrontal cortex is particularly involved in strategy use during tasks. By stimulating the right side during the verbal task, the volunteers might get better at using a strategy. The tDCS improves the connections of these neurons, which leads to enhanced ability to use this strategy, even on other tasks. Mike adds, "We did not explicitly collect data related to strategy use, so it is kind of an open question. I'd really like to do some follow-up work."

If tDCS can reliably enhance working memory or cognitive strategies, it could be a very useful tool for training people faster and more efficiently. Laura says, "This could benefit many mission areas at Sandia where people must learn complex tools and systems. Reducing training time and improving cognitive performance would have substantial benefits to overall system performance."

Sandia's Laboratory Directed Research and Development program provided funding for this research.

Jill Hruby

(Continued from page 1)

From my viewpoint, each of the two prior M&O contractors and parent companies have been instrumental in shaping Sandia. With AT&T as a parent company, Sandia was transformed from a test-based engineering organization to a science-based engineering institution. The essence of using basic and applied science to solve engineering problems was infused into Sandia from Bell Laboratories in many ways, perhaps most clearly through the executive leaders who came to Sandia from AT&T (usually on rotation).

JILL HRUBY in 1984, early in her research career at Sandia.

ON JULY 17, 2015, JILL HRUBY became the president and director of Sandia. She is the first woman to lead a national security laboratory. (Photo by Randy Montoya)

JILL HRUBY in 1989 at the time of her first supervisory appointment.

After AT&T and the government agreed that the time had come for a change in M&O contractor and parent company, Martin Marietta (shortly thereafter becoming Lockheed Martin) won a stiff competition to become Sandia's second M&O parent company. Under Lockheed Martin's leadership, Sandia had two major accomplishments: We greatly improved our business acumen and processes, and we diversified from a nuclear weapons laboratory to a national security laboratory. Lockheed Martin's approach was different from AT&T's. Lockheed Martin appointed technical executive leaders who knew the business and the Labs, but rotated in executive business leaders. Using this approach, Lockheed Martin honored the depth of knowledge at the Labs and fortified it with business leaders who kept us current and promoted best business practices. Sandia's leadership was fully trusted to make strategic decisions and nourish the culture of the Laboratories while adopting best practices from the private sector.

I am honored to have worked under both AT&T and Lockheed Martin and greatly appreciate what they did to define the Sandia we are so proud of today. I remember the contract transition in 1993. Some rough moments notwithstanding, the people at Sandia and Lockheed Martin found a way to make the Laboratories stronger and better. We held onto the best of what we gained from AT&T while being open to learning new ideas. For example, Distinguished Appointments were a Bell Laboratories tradition. To recognize employees as exceedingly qualified, Sandia began appointing people to the distinguished level under the AT&T contract. This tradition carried over with minor adjustments for the full duration of the Lockheed Martin contract. And we added from Lockheed Martin the Employee Recognition Awards to celebrate annual accomplishments. Many other traditions that define our culture today have been preserved from the past while we have been open to new ideas.

LABS DIRECTOR JILL HRUBY checks out BaDx, the pocket-sized Sandia-developed anthrax detector that was named by *Popular Science* as one of the top 100 innovations of 2015. (Photo by Randy Montoya)

So, now it is Honeywell's turn, as a parent company, to make Sandia better while maintaining the best of the past. I am deeply proud of the Laboratories we are entrusting to the NTESS team and extraordinarily grateful to the current Laboratory Leadership Team for their dedication to making this transition seamless and gracious.

The one thing I most want to inspire in all of you is the confidence and belief that you can make a difference in the future of Sandia National Laboratories. Be bold, be excellent, and be willing to learn. This is what makes you special, and it is what makes Sandia special.

Adios amigos. I will remain forever grateful for the opportunity to be your colleague and your leader.

IN SEPTEMBER 2015, Jill Hruby for the first time on her watch signed the annual assessment report addressing the status of the nation's nuclear weapons stockpile. (Photo by Stephanie Blackwell)

Better living through pressure: Functional nanomaterials made easy

By Neal Singer

Using pressure instead of chemicals, a Sandia team led by Hongyou Fan (1815) has fabricated nanoparticles into nanowire-array structures similar to those that underlie the surfaces of touchscreens for sensors, computers, phones, and TVs. The pressure-based fabrication process takes nanoseconds. Chemistry-based industrial techniques take hours.

The process, called stress-induced fabrication "is a new technology that mimics imprint processes already used by manufacturers," says Hongyou. "Only instead of embossing credit cards, we're using the same type of process to fabricate nanowires or other nano-sized components at ultrashort time scales."

The method, for which three patents have been issued, is nine million times faster than any known chemical method when performed on Sandia's Veloce pulsed power machine, which generates pressures on the order of 100,000 atmospheres, says colleague Jack Wise (1646).

Less exotically, for manufacturing instead of research, embossing machines similar to those already commercially in use could serve. "It's conceivable that few modifications would be needed to convert the machines from embossing to fabrication," Hongyou says.

The Sandia process saves:

- time, because circuits can be fabricated in seconds instead of the hours required by chemical methods;
- the environment, because there's no chemical waste to clean up;
- materials, because exactly the amount needed is placed on a substrate.

Also, defects common in industrial semiconductor chemical fabrication are reduced in number by the pressure process, which acts to fill any vacancies occurring in the product's atomic lattice.

"I have never seen or heard of this [process] in our extensive interaction with some of the leading material scientists in the world," says Tom Brennan of Chicago-based Arch Venture Partners, speaking in a YouTube video about an earlier version of the process. "It allows us to think of completely new material solutions to problems industry is facing across the board."

That earlier version of the pressure-based process worked by using a hand-tightened vise with diamond anvils, but that tool was not rapid or malleable enough for commercial production. Industrial embossing machines, on the other hand, produce sufficient pressure and are controllable.

"For a touch-screen, the pressure has to be worked out beforehand to stop the compression at just the right distance from the target: not too far, not too close, to produce the underlying nanowiring for a flat screen," says Hongyou. "It's a matter of programming the force applied to precisely determine how much to compress."

That is, for flat screens, the nanowires need to be made flexible enough to contact an electrically charged layer of the device when pressed by a finger, yet far enough apart to remain separate when there's no signal.

The technology, recently reported in *Nature Communications*, can fabricate a wide variety of nanoscale components including nanorods and nanosheets. The components can either be organized during their formation or dispersed in solvents for later assembly. The method could be used for chemical sensors, strain detectors, and electrodes in solar cells.

In addition to Hongyou and Jack, paper authors include Kaifu Bian (1815), J. Matthew D. Lane (1814), Gary S. Grest (1131), Tommy Ao (1646), Randy Hickman (1647), and Zhongwu Wang from Cornell University, plus former Sandia post-doctoral fellows Binsong Li and K. Michael Salerno.

The work was supported by DOE's Office of Science. Part of the work was carried out at the Sandia/Los Alamos-run Center for Integrated Nanotechnologies, a DOE Office of Science User Facility.

SANDIA TECHNOLOGIST Joshua Usher loads a target into the main power flow section of Veloce, a Sandia pulsed-power generator. The machine uses pressure rather than chemicals to form nanocomponents from nanoparticles. (Photo by Randy Montoya)

Hongyou Fan joins UNM faculty

Sandia researcher Hongyou Fan has been appointed a National Laboratory Professor at the University of New Mexico's School of Engineering in its Chemical and Biological Engineering Department. The non-tenure-track appointment, which took effect March 1, automatically renews every three years, and was made "in recognition of your significant achievements," according to UNM's award notification. "I look forward to the opportunities for development of collaborative programs and student mentoring," says Hongyou. (Photo by Randy Montoya)

HONGYOU FAN

Outgoing VPs say goodbye

The transition of Sandia's Management and Operating contract from Lockheed Martin to National Technology and Engineering Solutions of Sandia – NTESS — brings with it a changing of the guard at the Labs' highest leadership levels. In the transition, Labs Director Jill Hruby and nine vice presidents are leaving the Laboratories. On these two pages, departing VPs (not including current acting VPs) share some thoughts about what Sandia has meant to them and their careers, what it means for the nation, and how it can remain vital in the future.

Steve Rottler

Deputy Laboratories Director and Executive VP for National Security Programs

In my 32 years at Sandia, each day has been my "best day." The work has been meaningful, challenging, and rewarding.

I am most gratified by progress we've made in our diversity and inclusion efforts.

In many ways, our Sandia population mirrors the population at large — we have similar views, concerns, wants, and needs. It is important that we treat each other with dignity and respect at all times, especially in the face of stress and uncertainty. The nature and importance of our work requires intellectual diversity and the different perspectives that result from our varied backgrounds and life experiences.

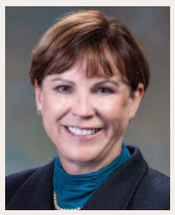
When I look at the ways our networking groups have impacted the Labs and our culture, or when I participate in a conversation we wouldn't have had just 10 years ago, I'm reminded of how far we've come. This is not the same Sandia I joined in 1985. Everyone who's worked here in that timeframe deserves credit for that.

Everyone owns the responsibility to make Sandia a place where people can bring the full measure of themselves to work each day. It takes confronting situations that take us out of our comfort zone and owning the personal baggage and bias we all possess.

While we've come a long way on this journey, there is no destination. Sandia is inherently a better place if we have a diverse workforce and it's a better place today than it was 30 years ago. You should all be proud of this and work toward an even better tomorrow.

Kim Sawyer

Deputy Laboratories Director and Executive VP for Mission Support



The goal to be the leading 21st century laboratory excites me as much today as it did when I joined Sandia National Labs in late 2010. We are on the path to success.

Consider the achievements we've made in just the past decade. We've simplified HR, financial, and procurement processes, modernized IT systems, and used engineered safety to ensure employees go home safely every day.

We have a new code of conduct, new communication approaches, and renewed commitments to a learning environment and to healthier lifestyles. We partnered with Legal, our commitment to diversity and inclusion is stronger than ever, and we've improved our transparency with NNSA.

We truly stand out as a leader.

We've successfully overcome challenges along the way. Our facilities and infrastructure were aging, but we've seen tangible improvements. Safety and security are moving in the right direction. We've also raised the bar on quality, measures and metrics, and project management. Functional alignment has matured, creating stronger capabilities.

If the workforce continues to build on the progress we have made, being the leading 21st century laboratory will be ours for the decades to come.

Jim Chavez

VP, Div. 6000, Energy and Global Security & Global Security Programs

For me, Sandia is about people. Yes, Sandia develops unbelievable technology (some of which we can't talk about), but Sandia is also the diverse set of people who operate the facilities and develop those technologies. These people are the incredible technicians, motor pool workers, engineers, and others who "come to work at Sandia for a couple years" and end up working here 30, 40, and sometimes more than 50 years. You know who you/they are: These are the people who bleed thunderbird blue. The diversity of these people is a key part of Sandia's culture. Who could have imagined 24 years ago, at the beginning of the Lockheed Martin contract, that Sandia would produce the first female NNSA laboratory director, three Hispanic vice presidents, and have more than 12,000 employees (almost double the number from 24 years ago)! The diversity of the Sandia workforce has been recognized and celebrated through numerous awards recognizing our employees and their accomplishments. I hope that in 2041 Sandia will still celebrate the diversity of its people and know that the people are the most important asset of the Labs.

Rob Leland

VP, Div. 1000, Science and Technology & Chief Technology Officer

I came to Sandia because it seemed the best place in the country to work in my field, and because I wanted to be a part of something with a higher purpose beyond my own work. I was drawn to the Labs' core institutional values that were so evident as to require no explanation — national service and technical excellence. When I welcome new employees to the Labs and reflect with them on its mission and heritage, I find their experience parallels mine 27 years ago. They instinctively understand and honor those core values. That is a remarkable sign of health in the nation's largest and most diverse research and development laboratory. And it gives me great faith that Sandia's tremendous legacy of contribution will continue, because that depends most essentially on the quality and dedication of the workforce — all of you — and on your unwavering commitment to exceptional service in the national interest.

James Peery

VP, Div. 5000, Defense Systems & Assessments

Defense Systems & Assessments' spectrum of mission R&D work is enormous, spanning IED defeat, missile defeat activity at Kauai Test Facility, special communications networks, satellite technologies, counterfeit detection, quantum information sciences, and better ways to assess and respond to proliferation.

We are successful because of two elements. First is partnering science and technology organizations with more applied organizations. Second is aligning our sponsored work along the competencies required for the nuclear weapons program, evolving those competencies, and paying them back into nuclear weapons.

I've greatly enjoyed my national laboratory career. What has gotten me up in the morning is being part of innovative teams that help keep our warfighters safe through science and technology.

Critical to this has been the people. It takes everyone pulling together, and we're fortunate to lead incredibly talented people in every element of the Labs.

Michael Hazen

VP, Div. 4000, Infrastructure Operations

Being and serving with fellow Sandians is an honor, privilege, and blessing unmatched in my life. A Sandian is special — it is not something you can simply declare. It is a badge of honor, hard-earned, and based on shared beliefs that we are serving something greater than ourselves. A Sandian is a leader who honors and makes a personal commitment to the preservation and protection of our nation. How lucky I am to serve side by side with each of you. I am in awe of all Sandians and what they have done over the many decades to provide exceptional service to our nation. Thank you for all you do . . . I am forever grateful for my journey in the company of Sandians.

LAST CALL — Captain Pablo Montoya of Sandia's Protective Force presents retiring Div. 4000 VP Michael Hazen a flag that flew over Sandia's New Mexico, California, and Tonopah sites. The presentation was the culmination of a moving "Last Call" tribute in which Div. 4000 employees lined a route along which a motorcade of emergency vehicles traversed the site. Last Call is something typically done for Security & Emergency Management professionals to recognize their leadership and wish them farewell upon retirement. Across the Laboratories, organizations found their own ways to say a special goodbye to their departing leaders.

Never forget

In his last NW all-hands meeting, departing Executive VP Steve Rottler speaks with passion about Labs values

By Cathy Ann Connelly

In his last Nuclear Weapons all hands — and his last formal Labs-wide address — Steve Rottler, Deputy Laboratories Director and Executive VP for National Security Programs, concluded his presentation with three things he hopes the nearly 12,000 Sandians "never forget as they pick up the pen to write Sandia's next chapter." As a consequence of the Labs' contract change, Steve will retire at the end of the month after a 32-year Sandia career.

"Never, ever forget how important the values of this institution are. If you begin to lose connection with those values, in my view it is the beginning of the end of the Laboratory. Those values have meaning, and they're only real if you talk about them and you use them in decision making, both at the individual level all the way up through the highest levels of the Laboratory." Otherwise, he said, they are just nice words on posters.

The second thing Steve highlighted is to not let up on the 10-year emphasis on unwinding the rule- and process-based environment at the Laboratories. Instead, he said, put "a much greater emphasis on critical thinking leading to the exercise of good judgment."

Steve said it is vital that Sandia not do a reset into thinking that every time there is a problem you correct it by creating a new rule and writing a new process and telling people to follow it. If you only do that, he said, you get a compliance mindset, and that mindset leads to a place that is inconsistent with the kind of work Sandia does and its role as a Federally Funded Research and Development Center.

Solutions are rooted in collective thinking

"Think of compliance as the minimum requirement — but we get to compliance by thinking critically and exercising good judgment rooted in critical thinking," he said.

The third thing Steve highlighted is diversity and inclusion. He said the reason it is so important to Sandia is because the Labs does the hard things, things others can't do or won't do, with high potential consequences and high risk. Steve observed that in his Sandia career he's never worked on anything where the solution to a problem boiled down to one genius who happened to be on the project or in the organization.

"Solutions are always rooted in the collective thinking of the people who are working on something," he said. "It is vitally important that the Laboratory have diverse perspectives, and diverse perspectives come from a workforce that is equally diverse in all dimensions." He added that you can't have diversity if you don't have an inclusive work environment, one in which every Sandian works to create the conditions that make it possible for every other Sandian to bring the full measure of who they are to work every day. Such an environment, he said, must also encourage and make it possible for Sandians to speak their mind, and be willing to speak the truth and say what they think without fear of retribution or fear of what others are going to think about them.

"What I've showed you today — all of the accomplishments, all of the forward-looking work — that wasn't done by the 10 or 15 people at the top. It wasn't done by the roughly 1,000 members of management at Sandia. We played an important role, but all that work was done by you and all of our colleagues here at the Laboratories across all professions, and that has to continue in the future. Integrating this Lab to accomplish the mission is very, very important," Steve said.

"The most important thing we provide the government as an FFRDC is our expertise, and expertise comes from you," he said. "So you are the most important thing about Sandia National Laboratories."

Program and people accomplishments, budget update

The all hands focused on accomplishments since Steve's last all hands in October — highlights of Sandia's six major NW programs (W76-1 LEP, B61-12 LEP, W88 ALT 370, Mk21 Fuze, W80-4 LEP, and Mobile Guardian Transport) and the science-based research and capabilities that support them. He also made a special call out of a rare opportunity in which every leg of the US nuclear triad was exercised in a recent 30-day period.

STEVE ROTTLER ADDRESSES SANDIANS in his last all-hands meeting as deputy Labs director and executive VP for National Security Programs. (Photo by Randy Montoya)

"In a short timeframe we exercised the triad in various kinds of tests [all were non-nuclear tests with nuclear materials removed]," Steve said. This included the launch of a MIRVed Minuteman III missile with two instrumented warheads with Sandia, Los Alamos National Laboratory, and Air Force components, and one high-fidelity warhead; a launch of Trident D5 missiles, part of FCET-53; and dual-capable aircraft that dropped a B61-12 Sandia/LANL bomb assembly and an Air Force Boeing tailkit.

Also highlighted in Steve's presentation were select accomplishments of world-class Sandians who contributed to the success of the NW program and to the Labs as a whole, along with discussion of the impressive progress and impacts implementing the NW Mission Area strategy over the past two years.

A budget and staffing segment by Rick Fellerhoff, director of the Nuclear Weapons Planning, Operations, and Integration Center and chief operating officer of the NW Program Management Unit (NWPMU), emphasized the proactive management of the current FY17 Continuing Resolution, along with the details of the funding carry-overs Sandia has effectively employed with government's cooperation and endorsement so that workforce stability and corresponding programmatic delivery has been maintained in a relatively chaotic environment.

The overall NW message was that "on schedule and on budget" continues to be the accurate summary of Sandia's delivery on core mission work, the heaviest NW workload Sandia has managed since the early 1990s. Certainly challenges exist, Steve said, including recapitalization issues connected to major Sandia capabilities and infrastructure, but that in partnership with NNSA, the Labs continues to make good on its commitment to deliver "exceptional service in the national interest."

More than 1,000 Sandians viewed the all hands live, but for those who missed it, an on-demand video of the complete all hands and its slide presentation can be found on Sandia's internal network.

Melonie Parker

VP, Div. 3000 HR and Communications

Working alongside the innovative minds of Sandia has been a tremendously rewarding and memorable experience. Every day our workforce contributes to the security of our nation and the betterment of our world. The Labs' mission presents unique opportunities, and those opportunities are what excite me when I step into Bldg. 802 each morning.

In Division 3000 we are charged with ensuring Sandia is staffed with the skilled and engaged workforce needed to deliver on our national security mission. We also communicate Sandia's work and impact to the public and our stakeholders, and we support our communities through meaningful outreach programs.

I am heartened by the strides we've made in all of those areas. We're ensuring a diverse and vibrant work environment for those who have dedicated their careers to national security. We're guaranteeing Sandia is well-positioned to meet its commitments now and in the future. We're reaching more people than ever with the Sandia story, and we're connecting with our communities in creative and lasting ways.

I have been honored to be a Sandian and to have been adopted into the Sandia family. In the coming months, I ask that you face forward and share the Labs with the new leadership team in the same spirit of openness and collaboration with which you welcomed me two years ago. We are all invested in the same outcome: a strong Sandia, and a safe and secure future.

Gary Sanders

VP, Div. 2000, Weapons Engineering and Product Realization & Chief Engineer for Nuclear Weapons

As I prepare for retirement after 36 years at Sandia, I can look back on some phenomenal accomplishments. I'm struck by how many occurred in the past 24 years under Lockheed Martin's leadership.

Many of those accomplishments have been instrumental in ensuring the nation leads in weapons capabilities. In the early 1990s, when the Lockheed contract began, there was little nuclear weapons modernization work for the nation. Over the years that followed, Sandia has helped lead realization and testing of America's three-pronged nuclear capabilities.

That work culminated most recently on March 14 at the Sandia-operated Tonopah Test Range, when a US Air Force F-16 dropped the first Sandia/Los Alamos/Air Force B61-12 qualification unit. In fact, since February, Sandia has actively participated in a number of critical tests, successfully delivering on all of its commitments — on time and on budget.

It has been an honor to work with such a dedicated group focused on ensuring peace through strategic deterrence. I look forward to hearing about your many future accomplishments.

Marianne Walck

VP, California Div. 8000 & Energy and Climate Programs

We have come a long way. I arrived at Sandia 33 years ago as a bit of an outsider: a female scientist (rather than an engineer, and a geophysicist at that!), working mostly in the energy and nonproliferation areas. I did not envision a career that provided so many opportunities for leadership at the laboratory level. It has been a true joy to see the impacts that Sandia's work in energy and in geosciences has had on the nation.

We have led the national laboratories' efforts to safely dispose of radioactive waste in deep geologic repositories, leading to the opening of WIPP for transuranic waste in 1999, and the submission of the Yucca Mountain license application in 2008. We have ensured the safety and security of our nuclear reactor fleet, including evaluating potential impacts of a terrorist attack on civilian nuclear facilities, and use of our MELCOR severe accident code to assess the Fukushima accident in 2011. We developed numerous innovations in renewable energy technologies and improved internal combustion energy efficiency. We saw our historic work on PDC drill bits and microseismic monitoring of hydraulic fractures culminate, through additional industry innovation, in the recent shale gas and oil boom that revolutionized 21st century US energy production.

I leave Sandia knowing that our technical expertise is exceptional, our commitment is strong, and that there will be many more future Sandia contributions to the nation's energy security.

Volunteer extraordinaire!

A LIFETIME OF SERVICE – Sandia retiree Len Duda was recently named Volunteer of the Month by the city of Albuquerque. For more than 20 years Len has devoted nearly 200 volunteer hours per year to sparking local students' interest in STEM. He has wowed kids with science demonstrations at school assemblies, judged science fairs across the city, moderated the Science Olympiad and DOE Regional Science Bowl competitions, and has brought STEM to Albuquerque families through Family Science Night activities. On Feb. 28, he captivated middle and high school students with a science demonstration at STEM Day at the Lab. "Volunteering is a great way to help many organizations and a great way to meet people with similar interests. I volunteer for science-related activities because I really like science and I hope to get students, especially at the elementary school level, excited about science. The city of Albuquerque award was an honor and also a recognition of my science volunteerism," he says. (Photo by Randy Montoya)

BY THE NUMBERS

Sandia/Carlsbad awards $20,000 math grant through Lockheed Martin fee money

Sandia/Carlsbad recently awarded a $20,000 grant to the Carlsbad Municipal Schools Sixth Grade Academy through Lockheed Martin fee money for the MidSchool-Math Program.

The program addresses the decline in student performance during the middle grade years in math. Teachers report ease of use for math curricula to be one of the most important factors in gaining achievement with students. With its innovative technique, MidSchoolMath launches a three-act video series that transports students to another place — for instance on a spice trading ship in the 1600s or in outer space — and present them with a challenge.

Students grapple with the problem, come to a solution, and learn how math is a useful tool to solve problems. A high-quality printable clicker quiz and an advanced adaptive test trainer are then added. Instructors report that they see higher engagement from students using the MidSchoolMath approach than they've seen with any other math curriculum.

Steve Morgan, the lead math teacher at Carlsbad Sixth Grade Academy, told Carlsbad Board of Education members during this recent presentation, that he is "blown away" by the program as he's seen it used in other schools across New Mexico. "I am impressed by how much better students perform," he said.

Program funds are being handled by the Carlsbad Community Foundation, a local charitable nonprofit organization that promotes and enhances the lives of people in Carlsbad and South Eddy County. It has been in existence since 1978 and has been a primary supporter of education, arts and humanities, health and human services, and other key issues for nearly four decades.

GRANT GIVEN — Sandia/Carlsbad Senior Manager Paul Shoemaker, right, presents a check for $20,000 for the MidSchoolMath Program to the Carlsbad Sixth Grade Academy during a recent Carlsbad Board of Education meeting. Joining Paul are, from left, Scott Laidlow, MidSchoolMath program director; Steve Morgan, math teacher at Sixth Grade Academy; Paula Bryson, teacher at Sixth Grade Academy; Lynn Strickland, principal of Sixth Grade Academy; and Mike Antiporda, executive director of the Carlsbad Community Foundation.

RECYCLING CRUSADERS — Procurement Manager Don Devoti, left, and environmental specialist Ralph Wrons, look over bundles of paper headed for recycling. Don's Just in Time purchasing group has switched Sandia to 100 percent post-consumer recycled content copier and printer paper. "With 100 percent recycled content copy paper, no trees are used and paper comes from a variety of paper mills using recycled paper," Ralph says. "It also completes the loop. It's not a stretch to say that the copy paper we recycle here now could become the input for the copy paper we buy later." (Photo by Randy Montoya)

Sandia's eco-friendly contracting saves money, environment

Buy green

By Nancy Salem

Sandia is upping the ante on government mandates that require new procurement contracts by federal agencies to include green and sustainable products, technologies, and services.

"We took the rules and did better," says Don Devoti, manager of Corporate and Strategic Purchasing Dept. 10248. "Green contracting saves money and reduces waste without compromising quality. Why would we not want to investigate that?"

The Labs recently signed a contract with Sandia Service Co., a subsidiary of Sandia Paper Co., an Albuquerque small, woman-owned, economically disadvantaged business that supplies 100 percent post-consumer recycled content (PCRC) copier and printer paper. The previous supplier's paper was 30 percent PCRC, the minimum federal requirement.

Sandia spends more than $400,000 a year on copier, printer, and fine paper, purchasing 9,000 cartons, each of which holds five reams with 500 sheets of paper per ream. "We looked for a more sustainable solution and found we could get 100 percent recycled paper at a 24 percent cost savings," says Blake Thies (10248), a buyer in Sandia's Supply Chain. "It's greener and more cost effective, a win-win."

High quality, competitive prices

Environmental specialist Ralph Wrons (4144) and his Materials Sustainability and Pollution Prevention group work with Sandia's Just in Time, or JIT, program to draft procurement contract language that specifies recycled content and other green provisions. JIT allows Sandia buyers to procure small-value, commercially available goods and services directly from suppliers. "Ralph and his group have helped us figure out what a sustainable contractor looks like," Blake says. "We seek out high-quality products with positive environmental impacts at competitive prices."

Green contracting results in less demand on forests, water, and energy, Ralph says. "With 100 percent recycled content copy paper, no trees are used and paper comes from a variety of paper mills using recycled paper," he says. "It also completes the loop. It's not a stretch to say that the copy paper we recycle here now could become the input for the copy paper we buy later."

Janitorial products supplier Brady Industries provides 100 percent recycled paper towels and tissues, foam instead of liquid hand soap, and right-sized, thinner trash can liners. "Our supply of green products to Sandia has reduced waste and the use of non-renewable resources, water, and energy," says Mark Stanger, Brady's regional manager of operations. About 65 percent of what Brady supplies the Labs meets environmental products criteria.

Ralph says Sandia has worked language into its JIT contracts with electronics suppliers such as Holman's Inc. of Albuquerque and Wildflower International of Santa Fe requiring they follow federal guidance and supply office products in line with the Electronic Product Environmental Assessment Tool (EPEAT). Managed by the Green Electronics Council, the evaluation tool lets manufacturers score the reduced environmental impact of their products.

"With computers, laptops, tablets, monitors, imaging, and other equipment, it raises the bar on manufacturers to align electronics technology with sustainability," Ralph says. For example, an EPEAT Gold computer no longer has heavy metals such as chromium, mercury, cadmium, and lead and can be recycled at the end of its useful life into components for new equipment.

Ralph says Sandia recycles 100 percent of electronic office products. "We oversee an electronics lifecycle from purchase through disposal that has significantly reduced impact on the environment," he says.

The reach of green purchasing continues to grow

Procurement worked with Ralph to place a new JIT contract in fiscal year 2016 that brings sustainability to paper shredding. Requesters can obtain bio- instead of petroleum-based oil for shredders and recycled-content plastic bags to capture the shred. When bags of shredded paper are placed into mixed paper recycle carts or dumpsters, the shred is either recycled or composted.

Fleet Services buys bio-based fuels and oils, and bio-based consumables such as glass cleaner, all written into their supplier contracts.

Sandia Office Supply sells a wide variety of office consumables with recycled content and helps Sandia by recycling thousands of spent printer/copier toners annually. "Toner exchange continues to grow at Sandia, a program Sam McCord (4144) set up years ago," says buyer James Brimhall (10248). "Ralph and Sam do a great job looking for ways to reduce waste at the Labs. They help me as a buyer to focus on quality and contracting with suppliers who offer environmentally sustainable items."

Ralph says green contracting will help the Labs reach its goal of zero waste by 2025. "Since 2008 we've reduced waste by over 380 tons, even while growing by another five buildings. Buying recycled content, buying only what we need, and seeking less packaging are good signals to our JIT vendors."

The JIT group takes sustainability seriously, Blake says. "Contracting is not just status quo," he says. "Sandia buyers are taking the initiative to work with green suppliers. We ask ourselves what we can do to make the footprint smaller, to do the right thing."

Don says suppliers have not objected to sustainability requirements and that green contracting will help Sandia achieve its environmental goals. "Suppliers have embraced finding new green products," he says. "As buyers we shop for what's important to us, and being green is important."

Earth Day/ Take Our Daughters & Sons to Work

Sandia will celebrate Earth Day and Take Our Daughters & Sons to Work Day on Thursday, April 27, with a variety of activities.

Employees and contractors can bring kids to the Labs to learn more about their hosts' work and Sandia's mission. It's also an opportunity to spotlight careers in science, technology, engineering, and math. Youth in grades 5-12 are invited to attend, and guests can include children, relatives, or friends.

Registration is required for all guests and can be done at http://tiny.sandia.gov/333iz.

The Earth Day focus is on environmental and health wellness. Activities kick off with a tree planting from 9:45-10:15 a.m. and showcase of HBE's Energy Hub from 10:15-10:45 a.m. at the Bldg. 956 track. Earth Day booths and displays will be set up in the Steve Schiff Auditorium from 11:30 a.m.-1 p.m., including the South Valley Growers Association, ABQ Ride, Live Safe, HBE, Commuter Assistance Program, Division 10000 Green Team, Groundwater, Ecology Team, ZERO Waste, Talking Talons, KAFB Environmental, Sandia's Environmental Compliance Coordinators, Program Planning, and Meteorology.

From noon-1 p.m., David Gutzler, a University of New Mexico professor of climatology and meteorology, will speak in the Schiff auditorium on "Climate Change and Water Resources in New Mexico." Gutzler is a lead author of the United Nations 2013 Intergovernmental Panel on Climate Change report.

For lunch there will be a BBQ on wheels outside the Schiff auditorium and other meal options at Hardin Field. Meals can be pre-ordered at sandia.misofi.net.

Numerous other activities, events, and demonstrations are planned for Earth Day and Take Our Daughters & Sons to Work Day. A list is available at http://tiny.sandia.gov/dn8xs.

(Photo by Randy Montoya)

National Security Technology Gallery

Visitors to Sandia often get a close-up view of some of the Labs' best national security technologies at the National Security Technology Gallery in Bldg. 810. Dept. 5020 has updated the gallery for a more relevant mission area focus, as well as featuring a selection of Sandia's latest national security technologies. Now, visitors are met by a 10-foot-by-8-foot photo montage of the Labs' top work — nuclear weapons take center stage with photos of other mission technologies arranged around them. The montage was created by designer Dan Thompson, left. Business development specialist John Kiegel is putting the final touches on an airborne radiological debris collection system. Walking further inside the gallery, each mission area has its own space. Video monitors show visitors the technologies in action and many examples are available for close-up looks, including some historical items, such as decontamination foam or the shrinking of synthetic aperture radars to mini-SARs over two decades. To the left of the gallery entrance, a 700-square-foot storage area was renovated to provide space for more of the gallery's collection. — *Heather Clark*

Mileposts

New Mexico photos by Michelle Fleming
California photos by Randy Wong


Terry Garino
30 1816


Vincent Hindman
30 5352


Joan Harris
25 415


Katherine Myers
25 1718


Hans Papenguth
25 2547


David Melgaard
20 5521


David Sanchez
20 2521

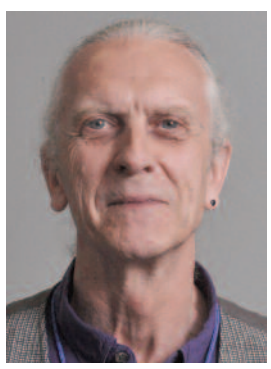

Ricco Carrasco
15 2135


Elaine Gutierrez
15 2214


Bob Kaplar
15 1123

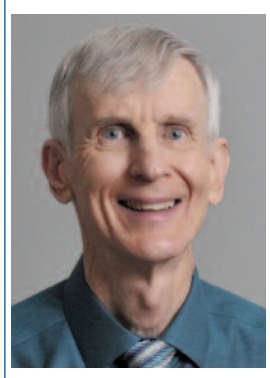

David Steele
15 5965

Leigh Anna Steele
15 2546

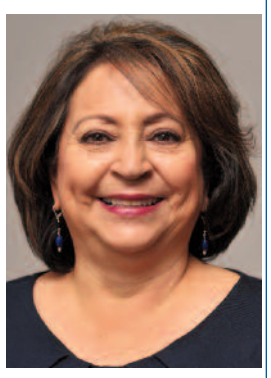

Rogulja Wolf
15 9349

Recent Retirees

New Mexico photos by Michelle Fleming
California photos by Randy Wong

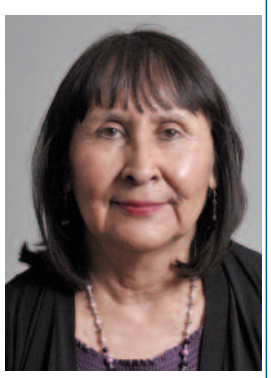

C. Douglas Brown
40 9312


Charlie Craft
36 5943


M. Christine Garcia
36 5097


Tim Lucero
36 4229


Rik Simmons
36 4826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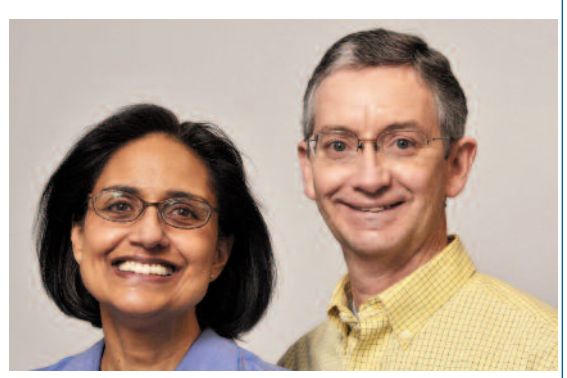
35 851

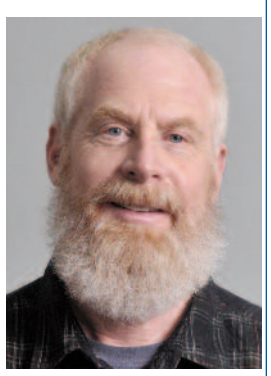

Charmaine Grabowski
34 10598


Sabina Jordan
31 158

Doug Jordan
32 5322


Peggy Schroeder
32 9538


Jay Hammond
27 2953


David Miller
25 6234

SANDIA CLASSIFIED ADS

MISCELLANEOUS

KID'S PLAY FORT, Step2 Woodland Climber, very good condition, $200 new, asking $50 OBO. Verley, 480-5109.

CARPET PADDING, premium memory foam, 1/2-in. thick, new roll, 270-sq. ft., $150. Pacheco, 505-321-2492.

HOT TUB, 6' x 10', seats 6+, great condition, call for more info, $3,500. Gallegos, 505-730-5886.

SCHOOLHOUSE DESK, w/inkwell, lift top, wooden pcs. near perfect, no rust on metal, photos available, $145. Cocain, 281-2282.

DIGITAL SCALE, Pampered Chef, small pizza stone, 9"x13" wood trivet-rack, smaller items, priced to sell. Garner, 269-3350.

SEWING MACHINE, Singer, $45; metal filing cabinet, $65; lounge folding chairs, $45 ea. or 2/$85; AC motor, 1/2-hp, $65; RV camping equipment. Garcia, 505-554-2690.

GOLF PULL CART, Bagboy, excellent condition, $80 OBO. Daniels, 505-492-0367, ask for Linda.

LATHE, Steg Hobby, 9" x 21", 3/4-hp, 110 VAC, TIMKEN bearings, quick-change tool post, 5 tool holders, $550. Boissiere, 505-239-1051.

HOME GYM, V3 Hoist, w/attached leg press, excellent condition, $1,000. Moya, 252-7878.

DINING ROOM TABLE, glass top, 5' x 3', bronze-finished metal base, 6 custom upholstered chairs, $250. Klein, 797-2407, mwklein@msn.com.

SIDE STEPS, fit '16 Chevy Colorado/GMC Canyon, new-in-box, complete, black tube design, $130. Sansone, 505-296-7945.

TREADMILL DESK, Exerpeutic 2000 WorkFit, assembled but never used, huge workspace, all normal treadmill features. Adams, 585-615-6695.

CABINETS, solid ash, w/glass doors & shelves, photos/details at http://www.wmstubblefield.com/sale-items, $50 ea. Stubblefield, 263-3468.

RIDING LAWNMOWER, John Deere LA115, w/dumping tow-behind hauler, <20 hrs. use, $1,350. Logothetis, 505-235-0172.

BED FRAME, queen, contemporary-style oak, pedestal, $100; dining table, solid wood, 84" x 40", in-table leaf, w/4 chairs & 66-in. bench, like new, $850. Felix, 505-573-0595.

GOLF CLUBS, Cobra Amps, 3-PW, regular shaft, excellent condition, 1/2 price, $300. Holmes, 873-5255.

SERGER, Evolution, Baby Lock, excellent condition, $400 OBO. Vrooman, 505-249-5592.

COFFEE MUGS, assortment, free-$5 ea. Santamarie, 619-300-6042, text message only.

WILLIE NELSON TICKETS, 2, April 23, Lubbock TX, floor, front, center row J, seats 5 & 6, $200/pair. Skinner, 505-856-1563.

FOLDING CARD TABLE, w/4 chairs, $25; 2 metal lamps & shades, stone base, $75 ea.; punch bowl, $20. Drebing, 293-3335.

WINGBACK CHAIRS, 2, & light green upholstered armchair w/ottoman, $200. Shaw, 980-7491.

BIKE TRAINER, Nashbar Minoura Magturbo basic, used only handful of times, $20. Siefert, 412-841-2690.

BED FRAME, queen, mattress/box springs, no headboard, like new, must sell ASAP, by appointment only, $80. Joseph, 480-521-4989.

COMPUTER CORNER DESK, large, you pick up, free; various houseplants, will text photos. Wallis, 505-681-7785, evenings.

How to submit classified ads

DEADLINE: Friday noon before week of publication unless changed by holiday. Submit by one of these methods:

- **EMAIL: Michelle Fleming (classads@sandia.gov)**
- **FAX: 844-0645**
- **MAIL: MS 1468 (Dept. 3651)**
- **INTERNAL WEB: From TechWeb search for 'NewsCenter'. At the bottom right of that page click on the 'Submit a Classified Ad' button. Complete and submit the Ad form. If you have questions, call Michelle at 844-4902. Because of space constraints, ads will be printed on a first-come basis.**

Ad rules

1. Limit 18 words, including last name and home phone (If you include a web or e-mail address, it will count as two or three words, depending on length of the address.)
2. Include organization and full name with the ad submission.
3. Submit ad in writing. No phone-ins.
4. Type or print ad legibly; use accepted abbreviations.
5. One ad per issue.
6. We will not run the same ad more than twice.
7. No "for rent" ads except for employees on temporary assignment.
8. No commercial ads.
9. For active Sandia members of the workforce, retired Sandians, and DOE employees.
10. Housing listed for sale is available without regard to race, creed, color, or national origin.
11. Work Wanted ads limited to student-aged children of employees.
12. We reserve the right not to publish any ad that may be considered offensive or in bad taste.

TRANSPORTATION

'00 SUBARU RS2.5, 5-spd., recent timing belt, clutch complete, cold AC, ~105K miles, $5,000. Larsen, 505-270-4350, text message only.

'13 MALIBU LT, hands-free Bluetooth, clean, excellent shape, 61K miles, great graduation gift, $10,900. Lifke, 382-9448.

'14 BMW X6 XDRIVE 35i, AT, AWD, space gray metallic, black interior, ~30K miles, $30,000. Howard, 505-573-2985.

'01 SUBARU OUTBACK, red, serviced well, reliable, nice & clean, Yakima rack, hitch, 208K miles, $2,200. Mattsson, 505-363-5668.

'13 HYUNDAI ELANTRA, 4-dr. sedan, MT, cobalt blue, 61K miles, great condition, $7,950. Smith, 505-507-8526.

RECREATION

'07 BMW R1200R, windshield, factory cases, heated grips, dealer serviced, $5,400 OBO. Castillo, 505-269-1705.

'09 GARY FISHER ROSCOE 2 MOUNTAIN BIKE, full suspension, several upgrades, very good condition, $850. Tomlin, 505-366-3838.

'11 BAYLINER, 215br, 21-ft., always stored inside, 4.3 MPI, V6, $24,000. Endres, 263-1616.

'13 ELECTRIC MOTORCYCLE, Zero S, 12.5-kWh, ~140-mile range, charges from standard outlet, 4,500 miles, $8,000. Delhotal, 505-659-1492.

'12 HARLEY-DAVIDSON SPORTSTER, custom 1200, many extras, 19K miles, perfect condition, $7,700. Atencio, 249-8395.

'13 POLARIS RZR JAGGED X, 4 seater, low miles & hours, many extras, excellent condition, $18,500. Young, 505-288-0578.

ROAD BIKE, Trek Pilot 5.0, carbon frameset, fork, saddle, seat post, bottom bracket, lightly used, excellent condition, $300. Rector, 505-710-6290.

SAND RAIL, 4 seater, 1600 cc, VW motor, great shape, photos available, $5,500 OBO. Gallegos, 463-1553.

REAL ESTATE

2-BDR. HOME, 2 baths, 2,016-sq. ft., study, Los Lunas 50+ adult community, solar, extras, amenities. Witt, 505-991-1878.

4/5-BDR. HOME, 2-1/2 baths, 3,300+-sq. ft., 1/3-acre lot, workshop/office, pool, covered patio, gazebo, MLS# 874650, $350,000. Fitzpatrick, 505-269-0069.

3-BDR. HOME, 1,384-sq. ft., recently built, lots of amenities, granite, central heat & refrigerated air, moving, must sell, owner financing w/little down, $235,000 OBO. Joseph, 505-515-5997.

NE HEIGHTS HOME, close to malls, fresh paint, wood floors, refrigerated air, xeriscaping, Zillow.com, 1836 Florida Street NE, $205,400. Galbraith, 303-845-0940.

3-BDR. HOME, 2 baths, .23 acre, quiet Los Alamos neighborhood, well maintained, updated, views, MLS#887341, $124,900. James, 505-261-1334.

WANTED

LARGE STORAGE BUILDING, e.g. 15-30-ft. wide x 15-30-ft. long, Morgan/Tuff Shed-style, w/floor, reasonably priced. Golden, 823-8656.

TREADMILL OR ELLIPTICAL, no frills, with variable resistance; used small charcoal or gas grill. Horton, 883-7504.

TOP DOC

Dr. Melissa Garcia recognized for work in family practice medicine

By Kristen Meub

Sandia's Dr. Melissa Garcia (3334) was recognized as a Top Doctor in *Albuquerque The Magazine's* annual Top Docs issue in March. The honorees were chosen through a survey of Albuquerque-area doctors, who were asked, "If you had to refer a loved one to a doctor other than yourself, to whom would you refer them?"

"I'm honored to be recognized because it's based on votes from your peers," Melissa says. "But I really think every primary care doctor and every physician who has continued to serve the patients of New Mexico deserves recognition, because this is a very hard state with a lot of unique challenges, and so the fact that people choose to stay and practice here, I think should be recognized."

Melissa works in Sandia's Health Management Clinic, which offers chronic disease management services for cholesterol, high blood pressure, pre-diabetes, diabetes, obesity, depression, and tobacco cessation. She has worked as a physician in Albuquerque for 17 years, joining Sandia a year ago.

"I like working at Sandia because I can focus on a smaller scope of conditions, and my interest is obesity medicine," Melissa says. "I think employees have a unique opportunity to engage in bettering their health at Sandia with our integrated model."

DR. MELISSA GARCIA

In the Health Management Clinic, employees can schedule appointments with Melissa and Sandia's other health educators for one-on-one visits and coaching, and they can also take advantage of online and in-person group education classes. Melissa says this integrated model can make a big difference for individual successes.

"We have a great team of doctors, nurses, nutritionists, behavioral health professionals, and physical activity experts who work together," she says. "Having peer support can be really helpful too, which is a benefit of attending one of our group classes. Seeing patients support one another is unique, rewarding, and pretty powerful."

Health Management Clinic coordinator and nurse educator Johanna Grassham (3334) says Melissa has been a good addition to the team and is already making an impact.

"Dr. Garcia is the best combination for a doctor: extremely intelligent and competent in patient care skills and diagnosis, but also caring, empathetic, and personable," Johanna says. "She takes the time to listen to patient concerns and then will go the extra mile to help. Sometimes patients have complicated cases, and I have seen Dr. Garcia take lots of time after an appointment to research options and connect people with specialists as needed."

Interested in Sandia's Health Management Clinic?

Employees can schedule an appointment by calling Health, Benefits, & Employee Services at (505) 844-4237. In-person and online Skype group education classes are available on the events calendar on hbe.sandia.gov.

Sandia's newest 40 under Forty honorees

Three friends shaping the future through mentoring and outreach

By Kristen Meub

Fabian Aragon, Isaac Romero, and James Burt have a lot in common, but each makes a unique impact at the Labs and in the community. All three started at Sandia as interns for Div. 10000 from the University of New Mexico and share a passion for mentoring and outreach. Now they've found even more common ground — all three have been named to Albuquerque Business First's *2017 40 under Forty list based on their professional achievement, contributions to the community, and leadership skills.*

"We didn't know each other in school, but all of us have gotten to be good work friends," Fabian says. "We all get along really well, and we all look out for each other. I'm very proud to get to work alongside Isaac and James in the different roles we serve."

SHAPING THE FUTURE — Fabian Aragon (left), James Burt, and Isaac Romero were named to Albuquerque Business First's *40 under Forty list.*

(Photo by Randy Montoya)

Fabian Aragon: Hooked on business

Fabian Aragon (10661) manages the Center 6100 and Center 6900 business operations departments, which are responsible for financial management, project management, and supply chain management. He holds a BBA in accounting and a master of accounting from UNM and has worked at Sandia for 13 years.

Fabian started school as a computer science student, but after taking an economics class he was hooked on business. He says the people and the mission make him proud to work at Sandia.

"Sandia is not a cutthroat corporate culture — we look out for each other, we respect each other, we team, and our corporate values really shine every day," Fabian says. "In all of our jobs we get to enable Sandia's mission of being a premier national security lab that makes the United States and the world a safer place. Every day I drive to work thinking how fortunate I am to be a part of this."

Fabian also appreciates Div. 10000's culture, saying it is strong in career growth and development opportunities with in-house training programs and mentoring. He currently mentors 20 early career employees and students and is passionate about helping others grow in their careers.

"There were two interns who were told at one point that they didn't have what it takes to make it at Sandia, and they were close to leaving because of that," Fabian says. "I reached out to them and provided mentoring, helped them get to a better place, and I've seen their careers thrive. It's been really neat to see someone go from potentially leaving the Labs to being seen as one of our rising stars."

Another stand-out moment for Fabian was seeing several of the people he's mentored or managed this past year earn promotions or new job opportunities.

"I think in my early career what I'm most proud of is the growth and development of all the individuals I've either recruited, managed, or mentored," Fabian says. "It's my favorite thing about my job, whether I get to tell someone that they are being promoted, they're going to make more money, or I get to hear about an achievement someone has had early in their career."

In addition to his role as a center business operations manager, Fabian is the lead for Sandia's year-round business student intern program and recruits on behalf of Sandia. He also works with UNM students doing mock interviews and resumé writing. He participates in Big Brothers Big Sisters and mentors a little brother. He's also served as a judge for Business Professionals of America competitions and is on the council for the Hispanic Philanthropic Society.

Isaac Romero: A passion for numbers

Isaac Romero (10571) is the business manager for Sandia's nuclear weapons PMU, managing all funding for weapons activities within the Labs and other business activities, including workforce planning and financial engagements with NNSA. He holds a bachelor's degree in finance and an MBA in organizational development from UNM, and has worked at Sandia for 14 years.

Isaac says the impact of the work and the outreach makes him proud to work at Sandia.

"One of the things that keeps me at Sandia is the shared sense of community and purpose that Sandians have — the pride in the work that they do for our national security, and the pride that they have in giving back to the local community," Isaac says. "We are involved in things that serve a greater purpose, both nationally and locally."

Isaac has a passion for numbers, an enjoyment that takes him by surprise sometimes. Before deciding to study finance he also considered becoming a teacher. Through the years that interest has morphed into strong involvement in educational outreach.

"Being involved with people who are trying to better themselves and learn is something I've always enjoyed," Isaac says. "That's one of the reasons I love Sandia — the emphasis on continuing education that the Labs promotes really fits in to who I am as an individual. Being part of a company where you're able — and encouraged — to give back makes you that much more passionate about the organization you are in."

Isaac does roundtable mentoring at Polk Middle School, mentors through Big Brothers Big Sisters, and does mock interviews, tech talks, mentoring, and resume reviews for UNM students. He also sits on the Hispanic Philanthropy Board, the UNM Anderson Alumni Board, and UNM's Beta Alpha Psi Advisory Board.

Isaac recalls working with a student at UNM who had applied to Sandia several times without passing the interview process. The student didn't have any professional work experience and was not coming off as a polished candidate. Isaac coached the student, suggesting involvement with student organizations, and helped with mock interviews, resumé reviews, and network building.

"He eventually got hired on as a student intern, did really well, and was converted to staff," Isaac says. "That's really stood out to me, the ability to make an impact on someone's life."

Isaac has also enjoyed seeing his little brother from Big Brothers Big Sisters grow and set educational and professional goals.

"At first he didn't know what he wanted to do, and now he wants to be a mechanical engineer," Isaac says. "He's starting to think of universities and he's at a place where he's thinking 'OK, I can do this,' and it's really awesome to see."

James Burt: Paying it forward

James Burt (10246) is a procurement manager with a 25-member department specializing in purchases under $150,000, which accounts for about $80 million of Sandia's spending each year. He holds a bachelor's degree in communications and an MBA from UNM and has worked at Sandia for 10 years. He is a Certified Professional in Supply Management and a Project Management Professional.

James started his career in advertising, but found he didn't care for the industry and started considering his options. He heard about internships at the Labs through friends and says he stumbled into a great opportunity.

"I got kind of lucky. I think the job found me," James says. "When I moved to Albuquerque I didn't know Sandia existed, and when I applied for the internship I had to Wikipedia 'procurement.' But I just fell for it right away, I thought it was really cool."

With the internship in mind, James applied for graduate school, scheduled his GMAT, and left his job as "a big shot account executive" in the span of the day, and hasn't looked back.

"I had a wonderful mentor at Sandia, Randy Shibata," James says. "I really expected to be making coffee for people, delivering packages, and filing papers. But Randy called me into his office on one of my first days and asked me what I wanted to do with my time here, and I told him I would love to get really good at this job. He showed me everything he could to help me grow, and I had a lot of unique opportunities as an intern. I got to travel, I got to work on some large contracts, and it totally exceeded my expectations. If not for the investment he made in me, I'm not sure any of this would have happened."

James has been paying that support forward with community service, mentoring, and philanthropy. He says his primary responsibility is to develop people, and he loves seeing his staff reach their goals, both personally and professionally. He is a mentor to several early career professionals at Sandia, and he is a member of the Student Intern Evaluation Team for Div. 10000, which evaluates graduating interns for long-term positions in the business community.

Outside of Sandia, he volunteers with Shine, a nonprofit sponsored by New City Church that partners with Albuquerque Public Schools to serve children. He also serves as a community mentor through the Big Brothers Big Sisters Community Mentor 2.0 program and is part of the United Way's new affinity group Guys Give.

"We meet at breweries twice a month to talk about philanthropy and come up with different ways to help the community," James says. "It's fun because we are determining what we want to be about and what we want to do. We want to provide quick short-term help but also have some long-term moon-shot type goals."

James says Guys Give recently helped Manzano Mesa Elementary School when the program that sends food home with students on the weekend did not receive their delivery on time. The school wasn't going to have any food to give out, so Guys Give stepped in to meet the need. The group also did a sporting goods drive for the Boys and Girls club.

James says it's an honor and privilege to be nominated and recognized, and he hopes that the result will be that other people are encouraged to try new things and get involved with the community.

"It's important for people to be happy and find joy in what they do," James says. "For me, it starts in my home, and moves into my neighborhood, then my community and my workplace. At Sandia your impact can actually be nationwide or global. I think we get the most satisfaction out of life when we can have an impact. Whatever that is, whatever your red rubber ball is going to be, find it and chase it."

ALBUQUERQUE BUSINESS FIRST 40 UNDER FORTY

"Sandia is not a cutthroat corporate culture — we look out for each other, we respect each other, we team, and our corporate values really shine every day."
— Fabian Aragon

"Being part of a company where you're able — and encouraged — to give back makes you that much more passionate about the organization you are in."
— Isaac Romero

"When I applied for the [Sandia] internship I had to Wikipedia 'procurement.' But I just fell for it right away, I thought it was really cool."
— James Burt